

The NIH Record

Freedom Only a Stone Wall Away

Eastern European Scientists Find NIH 'Doors' Open to Opportunity

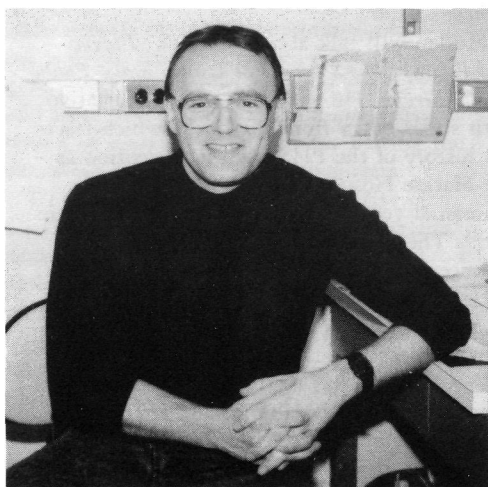
By Carla Garnett

When the Berlin Wall came tumbling down recently, liberating thousands of Eastern European citizens to travel at will, at least one East German was already enjoying a rare freedom—the permission to do research in an American laboratory. NCI offered the lab and Fogarty Center, NIH's international arm, offered the means.

"I hope this year is a starting point," said Dr. Siegfried Janz, a visiting associate in NCI's Laboratory of Genetics and currently the only East German scientist studying at NIH for an extended time. "I hope this is a starting point for considerable increase in exchanges between the United States and East Germany."

Janz came to NIH in September 1988, more than a year and a half after he initiated the visit with East German officials.

"As a graduate student, I was already interested in the work of Dr. Michael Potter," said Janz, whose research here on plasmacytoma in the mouse was prompted by Potter's successful animal model of the disease. "I wrote my thesis about this tumor system. The Labora-



Dr. Siegfried Janz, who works in NCI's Laboratory of Genetics, is currently the only East German scientist studying at NIH for an extended time.

tory of Genetics at NIH is the key group in this field. They were and still are doing some very pioneering things in this area."

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Hood Maps Sequence of Genome's Benefits to Biology

By Rich McManus

The conviction that life, particularly at the molecular level, is just fantastically amazing suffered no tarnishing at the hands of Leroy Hood, a biologist at the California Institute of Technology who recently gave a packed Masur Auditorium audience a glimpse of the brave new world in biology that is aborning with each advance in the human genome initiative.

Armed with twin slide projectors, seamless diction and boundless curiosity and enthusiasm, Hood toured the next 25 years in basic biology and medicine for a crowd assembled for the first of two lectures Hood presented under the auspices of NIDR's Visiting Scholars Program.

"I predict that in 15 years we will have identified more than 100 genes that cause disease and, for the majority of them, we will know how to circumvent the problems," he forecasted. "Medicine will move from its current reactive mode to a preventive mode."

The revolution in biology that began 25 years ago with test-tube DNA experiments is continuing today, he said, powered by sophisticated new technologies "that have profoundly altered the way we do biology": recombinant DNA, monoclonal antibodies and, Hood's spe-

cialty at Cal Tech, microchemical instrumentation.

Sequencing all of the DNA in the 50,000-100,000 human genes "is a tool, not a research project," he explained. Although interesting in its own right because it challenges science to find the most accurate and economical method of accomplishing it, the mapping and sequencing project will be most valuable for the experiments and therapies it generates, Hood suggested.

"The first 10 years of the project will be occupied by the development of new technologies," he said. "Clearly, they aren't powerful enough now to mount a frontal attack on the human genome itself."

What biologists aim to discover, ultimately, is how human development proceeds from a single cell to 1×10^{14} cells, all of which interact, more or less harmoniously, with one another. It is this "chromosomal choreography" that is of such surpassing interest.

Humans can make some 50,000-100,000 proteins, which are three-dimensional molecules folded exquisitely into unique shapes.

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Television Appeal Brings Gifts to Children's Inn

A 5-minute television segment about the Children's Inn at NIH that aired Jan. 29 on NBC's *Today Show* has drawn some \$7,700 in contributions from 191 people in 34 states, plus the District of Columbia. Those figures were as of a week ago; the gifts continue to arrive.

The story, which featured an interview with the parent of a child with cancer, included an address at the end that read only "Children's Inn, NIH, Bethesda, MD 20892."

A week later, the offices of the Recreation and Welfare Association at NIH started receiving gifts. Some were as modest as two worn, folded dollar bills enclosed in a piece of paper marked simply "Contribution" from Kirksville, Mo. Others included a check for \$1,000 from a couple in Gwynedd Valley, Pa., who wrote, "This gift is made in loving memory of our tiny baby daughter who died because of a very rare and incurable heart defect."

Another \$400 came from a woman in Afton, Okla., who wrote, "I spent much time with my mother, who had cancer, in a Houston hospital and saw many sick kids. I pray every day that my 2-year-old daughter will never have to go through any of that."

New York, California, Virginia, Pennsylvania, Maryland and New Jersey led the roster of givers. Also represented were such small towns as Floydada, Tex., Letohatchee, Ala., and Lisbon Falls, Me.

The television piece, aired as a part of regular medical reports by physician Art Ulene, included interviews with Dr. Philip Pizzo, chief of NCI's Pediatric Branch and Rep. Doug Walgren of Pennsylvania, whose wife Carmala has been a leading force in making the inn a reality.

Scheduled to open this June, the inn will be a home-like residence for up to 36 families that have a child being treated at NIH for cancer or other diseases. It is being built strictly with private money, the most generous portion of which—some \$3 million—has come from Merck & Co. Inc.

Carmala Walgren, who is president of the Friends of the Children's Inn, was moved to spearhead the project when a neighbor of hers who had babysat for her family was treated at NIH for cancer.

Several givers appended notices to their gift letters with words typified by a woman in Canastota, N.Y.: "This is all I can afford, so please don't keep sending requests for more money as most organizations do. I have to ignore them."

The R&W will send only heartfelt thanks to these contributors; they will certainly not

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GIFTS

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be asked to magnify their generosity.

A check for \$25 from a Park Ave. address in New York City included the note, "Thank the *Today Show*."

Several letters remembered lost relatives, such as this one from a woman in Tipton, Ind.: "When our son was dying, we were glad to know that a hospital motel was available even though his death was so swift we could not leave him long enough to use it. The doctor who was treating him left his office open so we could use his couch, since all we had was a chair in intensive care. Families need such support."

Not all of the gift offers were monetary. A Colorado woman wrote, "While I am not in a position to send the money you require to help finish your project, I do have a talent to share if you could find a use for it."

"The love of my life is quilting," continued Karen Platkin of Boulder. "To sleep under a hand made quilt is a very special feeling of warmth and love . . . Perhaps I can rally the Colorado Quilting Council with its 700 members as well as other quilting associations to furnish quilts for your project."

Also offering a service rather than cash was Jaru Art Products Inc. of Culver City, Calif.

"We are designers and manufacturers of decorative accessories," wrote the company. "We want to donate some of our products, along with some oil paintings, for the Children's Inn."

Offering just a helping hand was a Junior Girl Scout troop leader from Kingston, N.Y., who sent a postcard asking how the troop could help the inn.

Anyone wishing to contribute to the inn may contact the R&W, 496-6061.—Rich McManus □

Mullan To Address NIH Alumni

Dr. Fitzhugh Mullan will be the luncheon speaker at the next meeting of the National Institutes of Health Alumni Association (NIHAA) on Tuesday, Mar. 13 from 11:30 a.m. to 2 p.m. at the Bethesda Naval Officer's Club.

Mullan will talk about his book, *Plagues and Politics: The Story of the United States Public Health Service*. He will illustrate his narrative with slides taken from the book, which traces the history of the PHS from its inception as the Marine Hospital Service in 1798 to the centennial year of the Commissioned Corps in 1989. The book will be available for sale at the meeting.

Lunch will be served and the cost is \$15 per person. Guests are welcome, but reservations are necessary by Mar. 2.

The NIHAA was reestablished as a result of interest expressed by alumni and staff during the NIH Centennial celebration. The local chapter has almost 500 members, and the total national and international membership is 1,200. The association publishes a newsletter,



Dr. Fitzhugh Mullan

NIHAA Update, the third edition of which is due out in March.

Anyone who has worked, studied or been connected with NIH in the past is eligible to join NIHAA as a full member. Present NIH employees can also join as associate members. In each category the membership fee is \$25 per year.

For further information about the Mar. 13 luncheon or NIHAA, call 530-0567. □

Toastmasters Meet Evenings

The NIH Evening Speakers Toastmasters Club meets every 2nd and 4th Tuesday at 7:30 p.m. in Bldg. 31C, 6th floor, Rm. 7.

The program offers an opportunity to learn the principles and practice of effective speaking and listening and also to develop qualities and techniques for leadership.

Membership is open to all and guests are welcome. For more information call Padman Sarma, 496-9734. □



Some dark-humored soul left a mock tombstone near a gravel pile behind Bldg. 10 recently. The crane looming overhead marks Bldg. 49, construction of which has meant the demise of a parking lot near Bldg. 30.

The NIH Record

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Shopping at Reading, Pa.

Take a trip with R&W to Vanity Fair in Reading, Pa. The Vanity Fair Factory Outlet complex meets all of your shopping needs at discounted prices. You'll find just about everything: clothing, cosmetics, electronics, home furnishings, jewelry, shoes, sporting goods, tools and toys.

The bus will leave at 7 a.m. Friday, Mar. 30 from the NIH Bldg. 31C parking lot, and will return at 4:30 p.m. (arriving at NIH around 7:30 p.m.). The cost is \$23.50 per person, so be sure to come and join in on the savings. Sign up early for this popular trip at any R&W. Call 496-4600 for more information. □

*Depression, Stroke, Arrhythmias Targeted***Purines Hold Wide Promise for Drug Therapy**

By Kathy Kranzfelder

NIDDK and NIMH scientists announced two major findings in purine research at an international meeting, "Purine Nucleosides and Nucleotides in Cell Signaling: Targets for New Drugs," held in Rockville last fall.

Dr. Hiroyasu Nakata of the National Institute of Mental Health reported that he had successfully isolated the receptor for adenosine, a type of purine; and Dr. Kenneth Jacobson of NIDDK's Laboratory of Chemistry, Dr. Gary Stiles of Duke University, and their collaborators announced the first chemical labeling of the A2 receptor, which is responsible for changes in blood pressure.

The findings highlighted the 4-day conference on purines and phosphodiesterases, which are natural cell regulators found in almost all tissues. Analogs of these compounds are believed to have great potential for treating a wide range of disorders.

"We're beginning to go from basic to clinical studies in this area. That's why the possibilities seem endless," explained Dr. Vincent Manganiello of NHLBI's Laboratory of Cellular Metabolism, a basic researcher in phosphodiesterases for 15 years.

Meeting organizers Jacobson, Manganiello and Dr. John Daly of NIDDK's Laboratory of Bioorganic Chemistry said the conference brought together two important groups of scientists who usually work independently of each other but whose work interrelates and overlaps. They are scientists who study compounds that block the receptors of the purines adenosine, ATP and cyclic AMP and those who study phosphodiesterases and the compounds that inhibit these enzymes. Drug company chemists as well as NIH scientists and academic researchers attended.

"Drug companies are showing increasing interest in purines and phosphodiesterases for their potential value in controlling a wide range of physiologic responses, including heart rate, blood pressure, mood, immune response, even sperm motility," said Jacobson.

Treatment of hypertension was one of the first uses to be considered for potent adenosine agonists, which are compounds that function like adenosine. Adenosine usually slows down overactive organs. "It's sort of the 'things are getting out of control, let's shut them down' agent in the body," explained Daly. The FDA recently approved adenosine for diagnosis and treatment of certain types of supraventricular tachycardia, making it the first purine to be approved for clinical use.

Purines may also be used to treat stroke. The adenosine agonist cyclohexyladenosine

may increase survival of stroke by mitigating the body's natural response to a stroke. "The body releases excitatory neurotransmitters during a stroke that, when released in large quantities, are toxic to neuronal (brain) cells," said Daly. Cyclohexyladenosine prevents the release of glutamic acid, thereby halting the dangerous release of neurotransmitters.

Dr. Dale Hoskins of the University of Oregon Health Sciences Center in Portland demonstrated with his poster the remarkable mobilizing effect of adenosine analogs on sperm that do not "swim" properly. His studies may lead to the first treatment for infertility caused by inadequate sperm motility.

While some researchers are developing compounds to mimic the usual calming effect of adenosine, others are working on compounds that would block adenosine receptors on muscle and tissue cells—much the way caffeine does—and thus act as stimulants. Some conditions such as kidney failure and congestive heart failure may respond to the stimulating effects of these compounds, called adenosine antagonists.

Caffeine is classified as a xanthine, also considered a type of purine. When xanthines block adenosine receptors, the adenosine cannot bind to the cell and moderate its activity.

Caffeine's effects in humans, however, are diffuse and uneven. "Caffeine is a 'dirty drug.' It can affect all types of muscle and organ tissue indiscriminately," said Jacobson.

In contrast, the purine compounds that scientists can make today are very specific. For example, Dr. Alan Hutchinson of Neurogen reported synthesizing an A2-selective adenosine agonist, which, when administered as a drug, lowers blood pressure without affecting heart rate.

Xanthines block adenosine, but they also inhibit cyclic nucleotide phosphodiesterases, which are naturally occurring enzymes that control cyclic nucleotide concentrations by, for example, breaking down cyclic AMP into an inactive form. Cyclic AMP is an adenosine derivative and a vital intracellular messenger involved in regulating many important biological functions, including heart rate, muscle relaxation, fat metabolism, platelet aggrega-

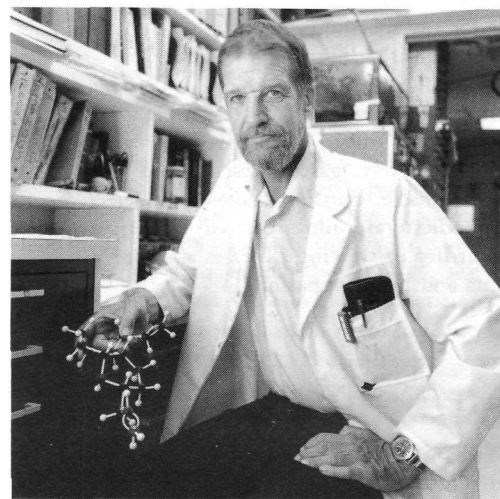
(See **PURINES**, Page 4)

NIDDK's John Daly Honored at Purine Meeting

Dr. John Daly, chief of NIDDK's Laboratory of Bioorganic Chemistry, was honored for his "pioneering research on adenosine and the selective adenosine agonists and antagonists" at the conference on "Purine Nucleosides and Nucleotides in Cell Signaling: Targets for New Drugs" held in Rockville last fall. His was one of two awards presented at the meeting, which brought together basic and clinical researchers in the rapidly expanding fields of purine and phosphodiesterase research.

Purines act as messengers between cells and within cells, triggering and catalyzing a series of cellular events. Daly, who has studied adenosine for nearly 20 years, established some of the basic elements of this "cascade of events." In addition, he developed several specific compounds that interact with purine pathways, providing several drug companies with ideas that are en route to becoming drug therapies.

Prof. Geoffrey Burnstock of the University College in London, England, also received an award for his hypothesis on purinergic transmission. He proposed that there must be neurons in the body that release the purine ATP, which can then excite or relax muscles.



Dr. John Daly

Previously ATP had been thought of only as the major source of energy within the cells. Burnstock's theory has stimulated a great deal of research in the area, and ATP has been shown to be a very important regulator.—Kathy Kranzfelder

PURINES

(Continued from Page 3)

tion and visceral transduction.

Dr. Joseph Beavo of the University of Washington in Seattle, one of the pioneers in phosphodiesterase research, presented an overview of these highly specialized enzymes, which he grouped into five classes. "It's unfortunate that there wasn't an award for phosphodiesterase work presented at this meeting," said Daly, "because if anyone deserves major credit for defining the variety of phosphodiesterases, Dr. Beavo does."

Dr. Carolyn Smith of NHLBI's Laboratory of Cellular Metabolism suggested in her lecture that activation of one cyclic AMP phosphodiesterase in fat cells might play an important role in the inhibition of fat breakdown by insulin. Others further suggested that this phosphodiesterase might be a key enzyme in regulating hormone-stimulated purine release from fat cells.

Dr. Ronald Weishaar of Warner Lambert/Parke Davis pointed out that the discovery and characterization of different types of cyclic nucleotide phosphodiesterases have stimulated interest and created new opportunities for designing selective inhibitors with therapeutic potential. Dr. Herbert Schneider of Schering, West Germany, indicated that one such selective phosphodiesterase inhibitor, rolipram, is currently in clinical trial for treatment of depression. Dr. Ron Davis of Baylor University in Houston and Dr. Marco Conti of the University of North Carolina in Chapel Hill described their efforts to clone the mammalian gene for the specific type of phosphodiesterase that is inhibited by rolipram.

Dr. Paul Silver of the American company Sterling Drug suggested that two phosphodiesterases might be involved in regulation of tone in airway, gastrointestinal and aortic smooth muscle. Further studies with selective phosphodiesterase inhibitors will investigate their utility in treating illnesses such as asthma and bronchospasm. □

Visa, Passport Office Changes Hands

The Fogarty International Center (FIC) will handle visa and passport services for NIH effective today. Frances Anderson, FIC administrative officer, will oversee responsibility for all visas and passports, which had been processed through the Division of Research Services. The new address is NIH Visa/Passport Office, FIC, Bldg. 38A, Rm. 604, Bethesda, MD 20892. The new telephone number is 496-3441; telefax is 480-3414. □

NIA Studies Offer Ways to Predict and Prevent Hip Fractures

By Margo Warren

Exciting new findings on predicting and possibly preventing hip fractures, now a nationwide epidemic that caused older people to spend 3 million days in the hospital in 1987 alone, have been released in two separate studies supported by the National Institute on Aging.

The first study showed that use of the hypertension drug thiazide is associated with a 30 percent decrease in the incidence of hip fractures among users. According to former NIA scientist Dr. Andrea Z. LaCroix and her colleagues, a study of the incidence of hip fractures in 9,518 men and women over 65 years old showed that thiazide use had a protective effect against hip fracture, independent of other risk factors. The incidence rates among thiazide users ranged from 4.43 to 5.65 per 1,000 person years compared to the nonusers' rate of 7.14 to 9.36 per 1,000 person years. According to the report, thiazides lower the urinary excretion of calcium, which may contribute to increased bone density.

LaCroix, now with the Center for Health Studies in Seattle, gathered data while serving as a project officer for the NIA's Established Populations for Epidemiologic Studies of the Elderly, a community-based longitudinal study of older people. The efficacy of thiazide in preventing fractures remains to be proven in future clinical trials. Nonetheless, LaCroix concludes that clinicians may want to consider the study's findings when choosing agents to treat hypertension in older patients, particularly since thiazide is one of several possible treatments for high blood pressure.

In the second study, an NIA investigator revealed that a decrease in bone mass can demonstrate a risk of hip fractures in women over 65. Dr. Steven R. Cummings of the University of California, San Francisco, headed a study that measured bone mineral density in the heelbones and in two places on the forearms of 9,704 older women and then obtained information on new hip fractures in the next 1 to 3 years. He found that hip fractures were highly correlated with low bone density in any of the three sites studied. These bone density measurements may be useful in identifying persons at high risk. The research also found that the risk of hip fracture increased nearly threefold with each 10-year increase of age over 65, independent of bone density. Other factors associated with age also contribute to risk.

NIA director Dr. T. Franklin Williams praised Cummings' findings, and suggests that physicians may want to start measuring bone density as part of their clinical evaluation of

older patients who have other known risk factors for osteoporosis. Such risk factors can include early (premature) menopause, a small skeletal frame, a family history of osteoporosis (a bone thinning condition affecting older people and characterized by decreased bone mass) and a life-long history of poor calcium intake. Once the condition is found or likely to develop, Williams advocates modest doses of vitamin D, adequate calcium intake and regular weight-bearing exercise. The question of use of estrogens should be discussed with one's physician. These views are shared by NIA grantee Dr. Charles W. Slemenda who, in the January issue of the *Annals of Internal Medicine*, reports that some risk factors for osteoporosis may be useful in predicting which women need bone density measurements.

These findings are complemented by another NIA-supported study which found that exercise significantly reduced the loss of arm bone density in a group of middle-age women. NIA grantee Dr. Everett L. Smith of the University of Wisconsin-Madison and his colleagues studied a group of women, average age 50, who exercised three times a week for 4 years, and compared them to a control group that did not exercise. The 45-minute exercise session consisted of a warm-up, cool-down, and 30 minutes of aerobic activity. Researchers did periodic measurements of arm bone density, which showed that the bone density in the control group declined significantly while the exercise group's decline was much less. The article concluded that physical activity such as the long-term exercise program in the study offers a valuable alternative or supplement to hormonal replacement as a way to prevent bone loss.

According to Williams, "Further research as well as application of what we know now should delay these risks and reduce dramatically the number of hip fractures among vulnerable older persons." □

USUHS Seeks Volunteers

The Department of Medical Psychology, USUHS, is seeking healthy people, ages 18 to 40, with at least 12 years of education, for a study of human thought processes.

Volunteers will be paid \$20 for a 60 or 80-minute session. For further information, contact Yavin Shaham, 295-3263 or 365-8726. □

NIDDK Summer Intern

NIH Trains Finalist in Westinghouse Science Contest

By Anne Barber

Raymond Meng, an intern last summer in NIDDK's Laboratory of Neuroscience, was recently selected as one of the 40 finalists in the 49th Annual Science Talent Search for the Westinghouse Science Scholarships. He will compete again in March with hopes of becoming one of the 10 finalists who will receive scholarship money.

Meng's project is on how the nervous system can influence the immune system. The pathways for immunosuppression by stress have been hypothesized to be either the autonomic nervous system (ANS) or the hypothalamic-pituitary-adrenal (HPA) axis. "My project seems to indicate that, although the ANS is involved, the HPA axis plays the bigger part," says Meng.

According to Dr. Prince Arora, senior scientist in the laboratory, Meng knew exactly what he wanted to do for his research project. In fact, when Meng submitted his application to NIH, the chief of the laboratory, Dr. Phil Skolnick, gave it to Arora and said, "Here is a CV of a student. He is interested in your area of research. He seems to be a bright kid. The only thing is that he is a high school student. I don't know whether you want him."

"I looked at his CV; it was very impressive," said Arora. "I had won medals and scholarships while I was in college, but here was a student doing the same while in high school. Since his interest fitted with the research program in my lab, I decided to give him a chance.

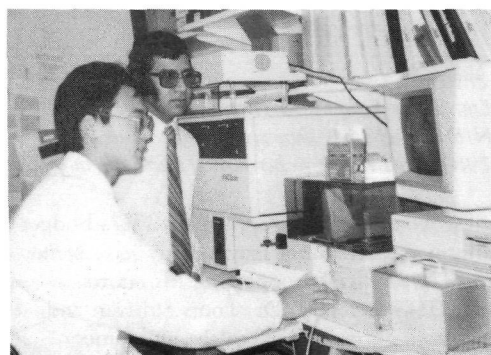
"A few weeks later I met him," Arora continued. "He seemed like a bright high school student. What impressed me most about him was that he knew exactly what he wanted to do in his research project and his background knowledge of the subject was also impressive. We applied for the FAES summer student grant program and got it. I had some reservations in the beginning whether they would give a grant to a high school student, but I guess they were also impressed by his background because he got one."

This was Meng's first internship at NIH. But he was aware of NIH because his sister, Cindy, has been a patient here for the past few years. Cindy, 15, has an autoimmune disease and Dr. James E. Balow, clinical director for NIDDK's Division of Intramural Research, is her doctor. Balow recommended Meng to the Laboratory of Neuroscience.

"I have always been interested in immunology, and it just seemed natural to include the nervous system along with my studies," Meng said. "Science is something I've always been

interested in. I started out as a nursing volunteer and got interested in research."

Meng worked for three summers at Pennsylvania State University's Medical Center in Hershey. "You can never stop learning about science. You keep on going. And since I'm not good at tennis," he jokes, "this is a good field."



Raymond Meng (seated) and Dr. Prince Arora look at the histograms of stained cells in the spleen of animals whose nerves have been chemically denervated.

Meng, 18, is from Camp Hill, Pa. His father is a systems analyst for the Pennsylvania governor's office and his mother works for an insurance company.

This is not Meng's first science contest. He won third place in medicine in the International Science and Engineering Fair, 1988 and 1989, for a project on the nervous system. Also, this past year he was among 25 winners in the Navy National Science Awards Program, again for a project on nerves. Awardees got a free trip to California for 2 weeks with tours of such interesting places as "Top Gun" school, where Navy fighter pilots train.

Meng was mentioned in *USA Today's* 1989 listing of the top 60 high school students around the country. He is vying for such honors again this year. This is, however, the first time he has entered the Westinghouse talent search.

Meng has always worked on science projects. The first experiment he remembers was collecting leaves, crushing them and measuring the chemicals. Another one was soaking seeds in water and assessing the damage. "I drove my parents nuts with that one," he says. "I had seeds soaking in every part of the house — bathtub, sinks and any other place I could find. But my parents have been very supportive of me in my scientific endeavors.

In fact, my father drives me here, sometimes twice a week, so I can continue to work on my project."

Meng enjoyed working in the NIDDK lab, especially with Arora. "He has been wonderful and very helpful. He has a good sense of humor, like when I mess up. I call him a lot at home when I have problems and he doesn't seem to mind. He has a lot of patience in teaching me things. He even got me a lab coat to wear while I was here. I never got one at Hershey.

"I would like to come back here and work between college breaks. This (kind of work) is not always available at other institutions.

"I had heard a lot about NIH before I came here, because most of the researchers at Pennsylvania State had grants from NIH," says Meng. "Now, I work at the institution that gives all the grants."

Arora has been at NIH for 10 years. He came as a Fogarty visiting fellow for NCI, joined NICHD in 1982, and the Laboratory of Neuroscience, NIDDK in 1987.

He has only been working in the field of neuroimmunology for the past 3 years. "It is a relatively new field. It is very exciting because there is very little known about it. It is a challenge," he says.

"I've had summer interns before but they were all college students. Meng is my first high school intern. I love training students. They are hungry for knowledge and they are bright. It is give and take on both sides.

"I think the summer intern program is excellent. It is good for the summer students and it is good for the NIH scientists, because it gives them the opportunity to meet bright young future scientists. I think it is worth the investment," he states.

Arora is particularly impressed with the research paper Meng wrote on his project. In fact, the lab will be able to use his research and his paper will be included as part of its research publication. "I'm very proud of him and his work," says Arora. "Our lab is proud, NIDDK is proud and I'm sure NIH is proud of him. We wish him the best of luck and hope he wins first prize in the competition."

Meager pay, according to Arora, is one of the biggest drawbacks to the summer intern program. "All of my summer interns have been able to receive some monetary contributions—one through MARC (Minority Access to Research Careers), and two from FAES. While it is only \$750, it helps."

Arora continues, "I think we should give high encouragement to summer students. One of my former interns is now in medical school, one is in graduate school and the other is in an M.D./Ph.D. program. As for Ray, he plans to major in the biological sciences at Harvard or Yale and pursue a career in medical research." □

EUROPE

(Continued from Page 1)

At home in Leipzig, East Germany, Janz works at the Institute of Clinical Immunology, a part of Karl Marx University-Leipzig. The institute, devoted exclusively to the research of plasmacytoma and the highly specialized diagnosis and treatment of myeloma patients, was formed in 1980.

"Half of the scientists do basic research on plasmacytoma," Janz explains. "The other half does clinical work with patients."

In the early 1980s, after coming across various American manuscripts by Potter's group in *Current Contents*, the literature reference service issued by the Philadelphia-based Institute of Scientific Information, Janz decided to contact Potter and tell him about the research Janz's own group was doing.

"At that time it was inconceivable to apply for an exchange," he said, smiling. "But as a young man, you are attracted by any group that is at the top and does research in the area you are working on."

After receiving a favorable and enthusiastic response from Potter, who had also agreed to sponsor Janz in the U.S., Janz applied for permission from his laboratory chief and eventually the East German government.

"My supervisor was very open-minded, very reform minded even this early," Janz said. "This spirit that something must change was present much earlier, especially in Leipzig."

If the scientific community in Leipzig helped the pot in East Germany simmer, recent events, almost 10 years later, in that country have caused the pot to boil over.

"Everything used to get stuck in East Berlin," recounted Janz, whose first visit to the U.S. was held up about 18 months. "Definitely it is this type of regulation that has been removed now. A bunch of interested people are sitting in the starting blocks waiting with what could be many mutual benefits for our country and the U.S."

Dr. Philip Schambra, director of the Fogarty International Center (FIC), which facilitates exchanges such as Janz's, agrees.

"These are well-educated individuals who bring their sound basic education and brilliance to combine with the facilities, scientists and atmosphere at the NIH," he commented. "They bring their own backgrounds in science from their countries and they make a very significant contribution to NIH."

According to Schambra, who hopes to expand widely FIC's scientist exchange programs with Eastern Europe and the Soviet Union, about one-third of the researchers in most intramural NIH labs are foreign scientists—half or more in some campus labs. In order to expand the exchange programs, Con-



Dr. Susan Lakatos, a visiting associate with NIDDK who has done research here since November 1987, will return to her native Hungary in June.

gress would have to supplement FIC's budget allotment. Schambra may already have some top HHS officials supporting his efforts.

"(HHS secretary) Dr. Louis Sullivan and (assistant secretary for health) Dr. James Mason are very interested in ways of increasing contacts with these foreign scientists," said Schambra.

In 1988, 1,507 scientists from 71 countries participated in NIH's Visiting Program, the largest of NIH's intramural scientific exchange programs. The Visiting Program was established in 1950 to provide administrative and technical support to talented foreign and American scientists who wish to do research with senior NIH investigators. Fogarty's International Services and Communications Branch (ISCB) handles some aspect of virtually every foreign scientist visit to NIH.

Scientists may visit NIH in one of three capacities: visiting fellow, which carries a prerequisite of 1 to 3 years postdoctoral work; visiting associate, requiring 3 to 6 years postdoctoral work; or visiting scientist, requiring 6 or more years postdoctoral experience.

According to ISCB chief, Dr. Kenneth Collins, "Visiting fellows are considered junior scientists with less than 3 years of relevant postdoctoral research experience who come to NIH to obtain research training."

"Visiting associates and scientists work in a collaborative fashion as colleagues of their NIH sponsors. Participants in the NIH Visiting Program are funded by the sponsor's institute."

Guest researchers (who conduct independent research using NIH facilities) and special volunteers (who work collaboratively with NIH sponsors) constitute two other categories of scientists who do research at NIH. Guest researchers may be funded by a U.S. organization, foreign government or private

organization; special volunteers are financially supported by their own countries. Almost 500 guest researchers from 47 countries and more than 150 special volunteers from 30 countries visited NIH in 1988.

Collins explained ISCB's role: "The ISCB provides complete management support of these programs, including analysis of visa and immigration requirements as well as preparation of all documents needed to make an award, appointment or assignment."

"After arrival of the scientist," he continued, "ISCB handles activation of the foreign scientist into the appropriate program and in-depth orientation, stipend and salary matters, temporary and permanent departure from the U.S., conversion between programs or institutes, tax matters and a great number of other technical matters."

"What we have to offer," noted Janz, "are young, not-so-badly-educated, highly motivated scientists who are really very eager to achieve."

As successful and mutually beneficial as the Visiting Program has been, not until recent years have Eastern Bloc countries really taken advantage of NIH's offerings. While Japan and China combined account for almost 500 visiting program participants in 1988, such countries as Romania, the U.S.S.R. and East Germany have accounted for less than 15 combined.

The crumbling of Eastern Europe's political wall could help open doors to more and better research techniques for its biomedical science community.

"Our problem is that we are not so advanced in certain methods—especially in molecular biology," said Janz. "A major reason for this gap we face is the inaccessibility of these methods in our country."

Lack of accessibility to research methods and equipment brings a lot of foreign scientists to NIH. That reason brought Dr. Susan Lakatos to NIDDK from Hungary in November 1987. For her, the choice to study in an NIH laboratory was simple economics.

"Here you have more money," she said. "A lab is a lab; basically all labs are the same. Here, the equipment is up-to-date and you have the advanced technology."

Lakatos, whose 2½-year U.S. stay will end in June, has been studying interaction between actin and globular proteins in the Laboratory of Biochemical Pharmacology.

According to Lakatos, well-equipped and adequately supplied laboratories are not to be taken for granted. For example, she says, time spent in Hungarian labs washing and rewashing pipettes and other instruments is time spent in NIH labs solely researching.

"This is a good example of the differences here," she said, gesturing toward a poster she prepared. "It took me less than one day to put



NEI statistician Dr. Valeria Freidlin emigrated to the United States from the Soviet Union nearly 3 years ago and hopes to apply for American citizenship soon.

together this poster. In Hungary, it would have taken all of one week, several days, to produce this same result.

"We don't have the computer software you have here," she continued, grinning, "but in my recent grant application (in Hungary) I have requested it. I will have to see if it is approved."

Because Lakatos has been in the U.S. during most of the recent political trials and triumphs of Eastern Europe, she was hesitant to speculate about how the changes will affect her country's biomedical research community. In 1988, 35 Hungarians researched at NIH. Will there be many more now?

"The country has really changed," she noted. "I don't know what I shall find when I go back. It's funny that I learn most about my own country from the *Washington Post*. It's a good newspaper."

Dr. Valeria Freidlin, a statistician who emigrated from the Soviet Union to the U.S. in 1987, is hopeful but less optimistic for the Soviet Union's political problems. According to her, Eastern Europe has a lot more going for it than the Union of Soviet Socialist Republics.

"The U.S.S.R. is very different from East European countries," she said, citing primarily the lengths of time the countries have spent under similar restrictive political rules. "Seventy years is much, much different than 40 years."

"I hope that in a few years, Eastern Europe will be totally independent of Soviet power," she said, pointing out the long, uphill battle of complete economic freedom ahead for Eastern Europe.

"Of course, there are economic problems, but I think countries like South Korea can set a good example of how to use Western money and cheap labor to take care of huge debts and economic crisis in Eastern Europe."

"In the U.S.S.R. there are many negative factors, though. One of them is popular chauvinism, which may be used by conservatives to undermine the democratization in the Soviet Union."

In 1988, the Soviet Union allowed fewer than five scientists to visit NIH for extended periods. In addition, fewer than five Soviet guest researchers studied in NIH labs. With the most recent announcement by the Soviet Union of removal of the Communist party from monopolistic power in the country, however, it is difficult not to feel optimistic.

Fogarty's Alexandra Stepanian, International Coordination and Liaison Program officer for the Soviet Union, Eastern Europe and East Asia, reminded, "It is important to note that even when relations between the U.S. and the Soviet Union were strained, cooperation in the health sciences has continued uninterrupted since 1972."

Schambra predicted, "When Bush and (Soviet leader Mikhail) Gorbachev next meet, ways to enhance science and technology cooperation may very well be on their agenda. In the past, in the early days of the two countries' rapprochement, biomedical science played a very important part and I think it will continue to be an expanding area of mutual interest." □

NIAID Scientists Discover New Human Herpesvirus

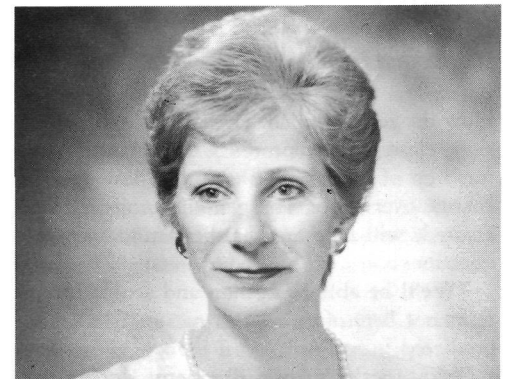
By Laurie K. Doepel

A new human herpesvirus has been discovered by scientists at the National Institute of Allergy and Infectious Diseases. Designated HHV-7, or human herpesvirus 7, it is the seventh herpesvirus now known to infect humans. The new virus preferentially infects T cells, a type of immune system cell.

Investigations are under way to determine whether HHV-7 may be linked to any human disease. The six other known human herpesviruses—herpes simplex viruses 1 and 2, varicella zoster virus, Epstein-Barr virus, human cytomegalovirus, and HHV-6—cause a spectrum of mild to severe illness in humans, including cold sores, chickenpox, shingles, mononucleosis, and genital herpes. In rare cases, some herpesviruses can cause life-threatening encephalitis, or if transmitted to a fetus, congenital malformations. Immunosuppressed individuals can suffer unusually severe disease.

A report of the discovery by Dr. Niza Frenkel and colleagues appears in the second January issue of the *Proceedings of the National Academy of Sciences*. Frenkel heads the infectious diseases unit of the institute's Laboratory of Viral Diseases.

The discovery came to light when the NIAID scientists examined a sample of T cells given to them by Dr. Carl June of the Naval Medical Research Institute in Bethesda. He



Janyce N. Hedetniemi recently joined the staff of NIGMS as chief of the Office of Program Analysis. In her new position, she will be responsible for program and policy analysis, evaluation and planning activities, and the development of databases on NIGMS research and training programs. Hedetniemi came to NIH in 1977 as a program analyst with NICHD. From 1981 until accepting her current position, she was chief of the Planning and Coordination Branch of NHLBI. She has also served on the staff of the President's Biomedical Research Panel and has held administrative positions at two area universities.

was studying these cells because they carried CD4 markers, which the AIDS virus uses as receptors to enter T cells. The cells had been exposed to conditions that activate them, inducing them to divide.

During activation, some of the cells changed their appearance—they ballooned in size and formed small clumps of cells known as syncytia. It was clear that the cell culture harbored some infectious agent, and Frenkel and her colleagues decided to try to ferret it out and characterize it.

After isolating the infectious agent and examining it under an electron microscope, the NIAID scientists saw clearly that it belonged to the herpesvirus family. They suspected that the virus was HHV-6, since that was the only human herpesvirus known at that time to infect T cells preferentially.

Yet once they had successfully grown the virus and characterized it genetically, they found that this new virus was distinct from HHV-6. They determined that it should be considered a new human herpesvirus and, by the conventions set down for naming new viruses, should be called human herpesvirus 7. HHV-7's genetic makeup shows that it most closely resembles HHV-6 and human cytomegalovirus.

(See **HERPES**, Page 10)

GENOME

(Continued from Page 1)

How do genes, which have a single dimension, express these proteins? What is the function of a protein's shape and how does it change over time? The genome project, Hood assured, will help answer these fundamental questions.

"We'll be able to fashion and sculpt proteins not heretofore seen in nature," he predicted.

Two types of maps will emerge during the project's first decade—a physical map, which involves cutting chromosomes into segments and assembling a sort of "linear jigsaw puzzle." The second map will be genetic, showing which genes carry which traits.

"One day we will be able to superimpose the two to find precisely where the gene encoding schizophrenia is located," said Hood.

The genomes of relatively simple organisms will be studied as part of the initiative. Bacteria, yeast, nematodes and flies will be examined for how genes work and how regulatory and functional networks are arranged. The mouse genome will be studied for conserved regions of DNA and as a model organism for human disease.

Beyond the first step of technology development, which Hood said must be made 100 times more powerful than it is today, and the second step of mapping/sequencing is the problem of data interpretation, which "will be a challenge for many years.

"We should get one-half to 1 percent of the (human) sequence in the first 5 years," Hood said. Regional DNA sequencing will occupy the next half decade. "After 10 years, a very serious attack can be mounted on the remaining 95 percent of the genome."

Primarily interested in studies of the T-cell receptor loci in mouse and man, Hood and his colleagues at the Center for Analysis of Genes and Proteins are devising ever more sensitive and accurate assays for determining protein sequences. In 1986, his team developed a fluorescent DNA sequencer. Today, they are applying better chemistry and computational power to these problems, employing robots and automated protein analyzers to speed their work.

Perhaps the world's most sophisticated computer chip, composed of 400,000 transistors packed into an area of 1 square cm, has been fashioned in Cal Tech labs as a tool for analyzing DNA homology. Two chips, a BISP (biological information signal processor) and FDF (fast data finder), are helping scientists quickly explore thousands of nucleotide base-pairs for regions of similarity.

Hood also described a new test that can determine single nucleotide mutations in

DNA—an oligonucleotide ligase assay—which will be an important diagnostic tool in medicine.

Acknowledging that social issues—prenatal diagnosis of disease allowed by DNA technology, workplace discrimination made possible by DNA fingerprinting, as well as new concerns in such areas as insurance and racism—are also factors in the human genome initiative, Hood dismissed them relatively lightly in this discussion. More troublesome, he suggested, is an "abysmal level of science education at the primary and secondary levels in American schools.

"Scientists must be willing to go out to the communities and explain what they do," he said, challenging the assembly.

A more capable spokesman than Hood could scarcely be imagined, given the enthusiasm shown by NIH'ers who attended his NIDR-sponsored lectures. □

New Session for Weight Watchers

The next session of Weight Watchers at NIH is scheduled to begin Mar. 16. Classes will be held on Fridays, noon-1 p.m. in Bldg. 31, Rm. 11A10. Cost for the 8-week session is \$100, payable upon registration. Class size is limited to 30, and registrations will be taken on a first-come, first-served basis on Friday, Mar. 9 at noon in Bldg. 31, Rm. 11A10. □

Richard Stewart Retires From NEI

Richard Stewart, property and space management technician at the National Eye Institute for 9 years, has retired. He had completed almost 37 years of federal service, all at the NIH.

At NEI, Stewart managed the transfer and identification of all NEI property. Deputy executive officer and supervisor Phyllis McKee says, "Richard was able to achieve a delicate balance of ably accomplishing his duties in



property management, which are generally unpopular with most of us, while maintaining a high degree of personal popularity. He was always ready to offer a pleasant word and a helping hand, and we wish him well as he begins his new lifestyle, fishing pole in hand."

Stewart plans to spend his time enjoying the outdoors; fishing, hunting, and gardening, and lots of "special time" with his 9-year old granddaughter, Caroline. □

STEP Forum on the Human Genome Project

The Staff Training in Extramural Programs (STEP) committee is holding a forum entitled "The Human Genome Project" on Mar. 7, from 1 to 3:30 p.m. in Wilson Hall, Bldg. 1. It will focus on the mission and structure of one of NIH's new centers, the National Center for Human Genome Research (NCHGR).

In FY 1988, Congress awarded NIH \$17.2 million to conduct research on mapping and sequencing the human genome; this increased emphasis led to the establishment of the Office of Human Genome Research within the Office of the Director, NIH. The concept of organizing a large project to map and sequence the DNA in the genes and intergenic regions that connect them has received increasing attention worldwide. Congress has now authorized and appropriated funds for a major NIH role in this effort and has created the NCHGR.

How does the appropriation of NCHGR keep pace with the vision of its authorization? What technological approaches will enable us to map and determine the sequence of more than 3 billion nucleotides in the human

genome, and how will the database of information be managed? Program staff of the center will outline the philosophical and ethical challenges the project faces.

Dr. Elke Jordan, deputy director of the center, will speak on the history and organization of the human genome project. Dr. Mark Guyer, assistant director for program coordination, will discuss the approaches planned for genomic mapping. The chief of the Research Centers Branch, Dr. Jane Peterson, will cover issues dealing with large scale sequencing. Dr. David Lipman of the National Center for Biotechnology Information will speak on a major challenge facing this initiative—informatics—the organization and standardization of more data than any other single project in the history of biology. Dr. Eric Juengst, a special expert to NCHGR, will speak on the ethical and social implications of human genome research.

As with all STEP Forums, there will be an opportunity for discussion and interaction with the faculty. For additional information contact the STEP program office, 496-1493.

Fewer Busy Signals, Clearer Voice

New Federal Phone System Introduced

By Anne Barber

A doctor at work in his laboratory needs to touch base with a colleague in another state to discuss scientific data. He picks up the phone, dials the number, and gets a busy signal. A few minutes later, he tries again. After about 10 minutes, he gives up and goes back to his bench to continue his experiment knowing he will have to try again later. Sometime later, after many tries, he finally gets through. But wait a minute, there is static on the line. He can barely hear his colleague, much less understand him, and this is very important data to get correct. Frustrated, he begins to talk loudly so that he can be heard above the noise. After many repeats, his colleague understands and they are able to communicate their findings. Mission accomplished, the time loss is just chalked up to the way the government's FTS phone system works.

Not so anymore. Enter the new FTS 2000. According to Walter Burger of NIH's Office of Telecommunications, "Today, you will get fewer busy signals, and the voice is much clearer."

The FTS 2000 is a strategic network offered by AT&T that can impact on NIH's performance of business and communication with other government agencies and the rest of the world.

Under the old FTS (Federal Telecommunications System), it was difficult and expensive to get services to remote locations, such as Hamilton, Mont., one of NIH's major research stations. Under the new system, services can be provided to anywhere in the U.S., Puerto Rico, Guam and the Virgin Islands.

The FTS 2000 offers many services. The switched voice service (a high performance network service that supports both voice and analog data transmissions) is available 24 hours every work day and includes high quality voice transmission and audio teleconferencing that can support up to 55 concurrent callers. Also part of switched voice is the capability for agency-recorded announcements that can be used internally and/or with the calling public.

The switched data service allows for rapid data transmission and support for high-speed facsimile (fax) and computing services. The service includes dial-in access from on-net and off-net locations and includes security features.

The video transmission service that will be available through the new system can transmit near-full motion color video. This system has just recently completed a month-long trial between the Health Care Financing Administration's Woodlawn complex in Baltimore to the Hubert H. Humphrey Building, Wash-

ington, D.C. The result: while there was some blurring during rapid movement, the quality was acceptable.

The dedicated transmission service, offered with FTS 2000, is a private line for high speed digital data transmission. At the moment, NIH has requested links to Fort Detrick, University of Maryland and Burlington, Vt.

The switched digital integrated service provides the ability to receive and transmit voice, video, data and image information simultaneously.

"The NIH campus switched over to FTS 2000 last November," said Edward Brown, chief of NIH's Office of Telecommunications. Some off campus locations such as Frederick will be switching over in April. "We hope that remote places like Hamilton, Mont., will be switched over by FY91. Users should be noticing improved communications."

The FTS 2000 is a use-based network and therefore, all costs depend on volume and usage. The contract was awarded to both AT&T and Sprint by the General Services Administration, with specific agency assignments being made by GSA. AT&T will service all of DHHS.

"The old FTS network was administered by GSA, not AT&T or Sprint like today," said Brown. "It was comprised of circuits and services from 17 different carriers, with GSA administering the dialing plans."

According to GSA, estimated savings to the federal government under the new system should range in the hundreds of millions of dollars. □

Learn To Sail

The NIH Sailing Association invites would-be sailors to come aboard and register for basic training instruction on the club-owned Flying Scots. The training will be held for 6 weeks in April and May, with on-the-water training on the South River (south of Annapolis), as well as classroom instruction. Club members who successfully complete basic training are entitled to charter the club boats.

Applications for club membership and the class are available at the R&W Activities Desk, Bldg. 31, Rm. B1W30. Registration will be by mail, beginning Mar. 14, and must be received by Mar. 28. Enrollment is limited, and students are accepted on a first-come, first-served basis. Students must be at least 18 years old. For further information see the application at the R&W Activities Desk. □

Fredette West Named NEI Budget Officer

Colleagues of Fredette West are pleased about her recent return to the National Eye Institute budget office, this time as budget officer. West was a budget analyst at NEI from April 1986 to May 1987. She replaces Carmen Richardson who left for a position at ADAMHA.

West is from the Washington, D.C., area where she graduated from Trinity College with a degree in chemistry, and from the University of Maryland with a master's degree in general administration. Her first job at NIH was as a chemist at the National Heart, Lung and Blood Institute, where she also served as chairman of the Equal Employment Office advisory council.



Fredette West

She was chosen for the Management Intern Program at NIH in 1981 and completed assignments in contracts, budget, administration, program analysis and legislation. During the legislation assignment, she served as a congressional fellow with Rep. Joseph Early (D-Mass.) and stayed an additional 6 months at his request. Experience as a management intern helped her make the transition from chemist to administrator, especially with regard to managing the budget. Following her first assignment with NEI, she joined the staff of Rep. Louis Stokes (D-Ohio) on Capitol Hill. She then returned to NIH as budget officer for the National Library of Medicine.

As budget officer of the NEI, West is the principal financial advisor to NEI senior staff. Kenneth Cooke, NEI executive officer, said, "Ms. West is a person of intelligence and insight. We are delighted that she has returned to the NEI." □

HERPES

(Continued from Page 7)

The virus was isolated from activated, CD4-positive T cells taken from the blood of a healthy 26-year-old man. There was no evidence of active infection in this individual, and the scientists do not know how or when he became infected. His only recent exposure to herpesvirus was a varicella zoster infection at age 22. He remains healthy 1 year after the virus was found.

HHV-7 could be rescued only from cells that had undergone activation. The scientists believe that once the cells started to divide, this stirred the virus from its dormant state.

Viruses of the herpesvirus family, which includes the human herpesviruses, infect more than 80 different animal species. Like the other human herpesviruses, HHV-7 has a 20-sided protein shell containing a large DNA core. The protein shell itself is enveloped by a membrane.

Human herpesviruses also share the property of latency—that is, the viruses remain in the body for life, though they can switch between active and dormant states. The classic example of herpesvirus latency is herpes simplex virus 1, which causes cold sores during its active phase but retreats to neuronal cells during dormancy. Upon exposure to strong sunlight, or when a person suffers from high fever, the virus becomes active again, causing a recurrent cold sore or fever blister.

It was in 1986 that scientists announced the discovery of HHV-6. At that time, it was 20 years since a new human herpesvirus had been found. As scientists continue to perfect techniques for growing different cells and manipulating their function in the laboratory, Frenkel says she expects more human viruses will be uncovered. "And herpesviruses would be prime candidates for new viruses," she comments, "because they can sit there very quietly, not doing anything, until you start to change the host cell." □



The NIH advisory committee for employees with disabilities met recently for a daylong strategic planning training retreat. Attending were (standing, from l) Mary Fillmore, instructor; Robert Harr, NIDR; Alex Nobleman, NLM; Dr. Ron Geller, NHLBI; Jalil Mutakabbir, DEO; Dr. Marilyn Semmes, NIDCD/NINDS; Joan Brogan, DEO; Claudia Goad, chairperson, NIAID; Lucky Hosmer, NCI; Terri Messick, DPM; Judy Crockett, NIA; Susan Rae, ORS; Mary Glynn, NICHD; Dr. Marlene Cole, DRS; Robin Avent, NICHD; Jerry Garmany, CC; Lois DeNinno, NEI. Seated are (from l) Essie Lawrence, NLM; Mark Sharp, DRG; Janet Pomerantz, NIDR; Fu Sing Temple, NIGMS; Emma Tuyman, DRG; Sharon Quinn, NCI; Lynn Mueller, ORS.

Optical, Not Audio, Disk

DCRT Employs CD That Is Seen, Not Heard

The Division of Computer Research and Technology's library has long carried information on the latest in computer technology and applications; now this information can be accessed by one of the newest forms of computer information storage and retrieval, CD ROM.

CD ROM, or compact disk read only memory, is a 4.72-inch diameter plastic disk that can store 550 megabytes of digital data, which is equal to approximately 150,000 pages of text. Instead of storing it on a floppy disk or hard disk, information is stored on an optical disk that looks like an audio compact disk. It is placed in a CD ROM drive that uses a laser to read or access the information on the disk, and this is displayed on a computer screen.

"With this new publishing medium, the end-user can now perform online searches to quickly locate information," said Ellen Chu, chief librarian, DCRT. One DCRT employee recently remarked that she had spent 4 hours hunting through a local university library's printed indexes on a certain topic and came up with nothing, and yet she spent a few minutes online using the CD *Computer Library*, and found more than 50 references on her topic.

Information on CD ROM has been available at the DCRT library since 1988 with *Books in Print Plus* — a listing of all books available or forthcoming in the book trade. Future updates will include book reviews. In addition, the library now has the following CDs available:

Computer Library — this allows access to the full text of most popular PC and Macintosh magazines.

ICP Software Directory — a directory of software and vendors.

Microsoft Programmers Library — a collection of programmers' manuals pertaining to Microsoft and various programming languages as well as full text books.



DCRT chief librarian Ellen Chu loads an optical disk into a multiunit CD reader (also called a tower) that will allow her to access 550 megabytes of digital data.

Bookshelf — a collection of reference resources including a thesaurus, almanac and dictionary.

Science Citation Index-1986 to the present — this allows the user to look up an author's name and see the journal articles that person has published as well as where the author has been cited in other papers.

The Oxford English Dictionary

"CDs will become increasingly important in the scientific community because of the trend to publishing in this medium," Chu said. "Anyone who maintains and distributes enormous databases may find this technology provides a more effective format."

The DCRT library has also set up a local area network (LAN), which internetworks with the DCRT LAN and allows networked DCRT employees online access from their own personal computers to many of the library's information services, including selected CDs. The Mar. 13 meeting of CURE, the NIH 3COM network users group, will feature a presentation by Chu on networking CD ROM.

The DCRT library will be offering training classes to the end-user the last Friday of each month beginning Feb. 23. The first class will demonstrate the CD, *Computer Library*. The DCRT library is located in Bldg. 12A, Rm. 3018. For more information on CD ROM training or other library services call 496-1658. Library hours are as follows: Monday, Wednesday-Friday 8:30 a.m.-5 p.m.; Tuesday, 8:30 a.m.-3 p.m. □



TRAINING TIPS

The NIH Training Center of the Division of Personnel Management offers the following:

<i>Courses and Programs</i>	<i>Dates</i>
<i>Management and Supervisory</i> 496-6371	
Introduction to Supervision	3/5
Congressional Operations Workshop	3/12
Applied Creativity	3/16
Networking: Silent Politics	3/20
Effective Communications	3/27
How to Write and Publish Scientific Papers	4/23
Interacting With Difficult Employees	4/17
Time Management	4/17
Presidential Operations Workshop	5/7

<i>Office Operations Training</i> 496-6211	
Delegated Acquisition	3/12
Telephone Techniques	3/12
Voice and Diction Improvement	3/19

Training and Development Services 496-6211

Personal Computer training is available through User Resources Center (URC) self-study courses. There is no cost to NIH employees for these hands-on sessions. The URC hours are:

Monday	8:30 a.m. — 7 p.m.
Tues. Wed. Thurs.	8:30 a.m. — 7 p.m.
Friday	8:30 a.m. — 4:30 p.m.
Saturday	9 a.m. — 1 p.m.

Training Center, DCRT, and other training information is available on WYLBUR. Logon to WYLBUR and type ENTER TRAINING.

Fran Goff Retires from NEI After 20 Years

After 20 years with the National Eye Institute, Fran Goff, a grants management specialist in the Office of the Associate Director for Extramural and Collaborative Programs, has retired. She had completed 30 years of federal service.

Goff was the grants management specialist for the Collaborative Clinical Research Branch, which was established in 1987 to coordinate the management of all clinical trials and epidemiology studies supported by NEI. Dr. Richard Mowery, CCRB chief, said, "Fran was a vital, key member of the branch staff. Her thorough knowledge of the financial aspects and understanding of the nature of each study helped in evaluating problems specific to our branch's mission."

"My career goal," said Goff, "was to become a grants management specialist and know my job as well as possible and be the best representative of the government that I could be."

Goff has been the recipient of many honors and awards during her federal career. She also has conducted several training modules for the grants management advisory committee workshops and is a member of numerous professional organizations.

In 1960, Goff began her federal career as a

grants clerk with the Bureau of State Services. She then went to work at the National Institute of Child Health and Human Development as assistant to the training officer. She took a multitude of grant-related training courses in order to better her performance.

"I met my career goal in 1969 when I accepted a position as the senior grants management specialist in NEI's largest extramural program, Retinal and Choroidal Diseases," she said. In that position, Goff helped develop an automated system for mailing grant award letters that saved the time and effort of three staff members.

At a recent retirement party Goff was honored by coworkers, friends and family, including her daughter, Marilyn, who works in the NIH Division of Financial Management.

Goff and her husband plan to spend some time at their waterfront property at Hoopers Island on the Chesapeake Bay, and to visit her parents in Hemet, Calif. She is also looking into some part-time work at a university, similar to her job at NEI.—Linda Huss □

DNAdraw Class Starts DCRT Seminar Series; Nine Talks Planned

Beginning this month, the Division of Computer Research and Technology's training unit will be offering a special series of seminars featuring DCRT personnel as instructors.

The first seminar will feature the DNAdraw program and will be taught by the author, Marvin Shapiro, of DCRT's Laboratory of Statistical and Mathematical Methodology. The DNAdraw program takes raw sequence data as input and, through user interaction with menus, formats and draws publication quality sequences on LaserJet printers.

"This seminar will be beneficial to any NIH scientist who needs to draw DNA sequences for publication," said Shapiro.

DNAdraw, originally Decsystem-10 software, has been rewritten for the PC in a much improved version. Copies of this version 1.0 and its documentation will be made available.

"This program is the only one of its kind available for the PC," said Shapiro. "The ability to draw sequences is present in some large DNA handling programs on mainframe computers," he continued, "but they are not as easy to use, the output quality is not quite as good as what DNAdraw produces, and they are not free."

	SmaI		Cat box	
GCGTGTATACCGGGCTTCTTGACCAATTA	↓		Promoter	30
CCTCTGACCTGTATACCCGCGCTATATAA				60
ATGAGCTCA GAGT AGCGCTAGCTACTCCAC				90
CGGGAGGTAAGCTGGGATCGTCACCGATGC			Met L	120
TTCTCGCTCACGAGGGGAACGTGGGTATCT				150
euLeuAlaHisGluGlyAsnValAlaIleS				
CCATTAGACTGAAAGCCCTGTGGGAGACA				180
erIleArgLeuLysAlaProValGlyAspA				
ACTGAGTCGACACGGCTCGATTGTTACCCCG				210
sneE				
CCGTCACGGTTCAATAAAACCTCTACACTA				240
CGGTTAACTGTACGAGTTTTTTTTTCA			Polyadenylation signal	270
HpaI	↑			
CTATATATATATATATATATGCGATC				296

This is a sample output of a DNA sequence using the DNAdraw program with a laser printer.

There are two basic steps involved in the creation of DNA output. The first step, formatting the sequence, consists of specifying the number of characters per output line, areas for protein translation and the type of DNA and/or amino acid counting to be used. The second step, drawing the sequence, requires giving the type and location of highlights before plotting the output. The kinds of highlighting allowed include: amino acid

centering, dotted count columns, boxes and polygons (open and filled), italic, bold, greek, and reverse font text, proportionally spaced text, superscripts and subscripts, and underlining.

This first seminar in the series of nine will be given on Wednesday, Mar. 1, 9-10 a.m. in Bldg. 12A, Rm. B51. To reserve a space call the DCRT training unit, 496-2339. For more information on the DNAdraw program, call Marvin Shapiro, 496-6037.

Other topics in this series include: "Signal Processing on the Macintosh," by Dr. Eric Pottala; "Recurrent Problems in Data Analysis," by Dr. James D. Malley; "Remote Optical Sensing in Biological Tissues," by Dr. Ralph Nossal; "MLAB on the PC," by Richard I. Shrager; "Introduction to Image Processing," by Dr. Benes Trus; "Image Processing on the PC," by Margaret A. Douglas; and "Software for Solving Transportation, Diffusion, and Reaction Problems," by Dr. John E. Fletcher. To reserve a space for any of these seminars contact the training unit, 496-2339. □

NIH Honored for Most Successful CFC Campaign in Its History

NIH employees went deeper into their pockets to contribute to charity in 1990 than ever before in the agency's history and were congratulated recently when the Combined Federal Campaign honored NIH for exceeding its CFC dollar goal by some \$14,000. NIH received a Merit Award for achieving 102 percent of its fundraising goal.

"This has been the most successful and longest running campaign in the history of NIH," noted Jack Mahoney, NIH associate director for administration, at a victory convocation Feb. 5 in Wilson Hall. "We should all be very proud of this accomplishment."

Challenged to raise \$652,000 at the beginning of the campaign last October, NIH gave more than \$664,000. Marian Dawson, DCRT executive officer, led the record-breaking effort by the institutes in her role as NIH's CFC coordinator. She was assisted by Jack Patterson, former NIDR executive officer, and a cast of able keyworkers from every institute, center and division (ICD).

"We thought at the outset that we probably wouldn't achieve our goal," confessed Mahoney. "Not only did we exceed it but we also had about 800 more contributors than ever before."

Then he dropped the other shoe: "Next year's goal will undoubtedly be higher."

Ken Carney, to whom Mahoney flashed a knowing wink, will head the 1991 campaign; he is NLM's executive officer.

More than 68 percent of NIH's employees contributed to this year's CFC, which benefits some 1,100 health and welfare agencies in the Washington metropolitan area.

NIH has gained a reputation in the D.C. area of having the best campaign kick-offs of any agency; last fall's extravaganza, typical of recent years, featured a parade across campus, marching bands, rousing speeches on the por-



Accepting an award on behalf of all NIH employees who contributed to the 1990 CFC campaign is Jack Mahoney, NIH associate director for administration. Phyllis Fleming, CFC associate director for campaigns, presented the CFC Merit Award in recognition of NIH's generous giving.

tico of Bldg. 1, a campus footrace and walk, and an outdoor lunch for all interested employees.

Among the most interested of employees were keyworkers who urged their coworkers to contribute this year.

Several ICDs posted outstanding records by exceeding their dollar goals: Division of Engineering Services, OD (117 percent); Division of Cancer Treatment, NCI (113 percent); Clinical Center (110 percent); Office of the Director (104 percent); and the Division of Research Grants (101 percent).

Overall, the Public Health Service raised a record amount of funds this year, exceeding its goal of \$1.3 million. Dr. James O. Mason, DHHS assistant secretary for health, reported an increase of more than \$250,000 over last year's record-breaking total. □

Women's History Month Observed

Constance Horner, DHHS undersecretary, will be the keynote speaker for Women's History Month at a Mar. 6 luncheon to be held in the Parklawn Bldg. Last March, President Bush signed the Proclamation of Women's History Month, 1989 and 1990, acknowledging the contribution women have made to the history of the United States throughout all areas of our national life.

This March, the PHS Federal Women's Program managers and the 1990 PHS planning committee for women's history month program are sponsoring workshops pertaining to a woman's career. The topics address elements that will direct women in pursuit of the best in their professional lives. The workshops will be held Thursdays at Parklawn. Workshop I, "The Interview: How to Get It, How to Pass It," will be held Mar. 8. "Smart Women, Smart Moves: Designing Your Strategy for Success" will be the topic of Workshop II on Mar. 15. On Mar. 22, Workshop III will be "Networking." The final workshop on Mar. 29 will be "Managing Stress." Workshops I, II, and III will be held twice, available as a morning or an afternoon session. Workshop IV will be available in the morning only.

Any NIH employee interested in attending one or more of these activities should contact Dorothy White, 496-5497, or Denise Banks, 496-6301, to register. White is chairwoman of the NIH advisory committee for women and Banks is chief, Equal Opportunity Branch, DEO. □



Dr. Anthony S. Fauci, NIAID director, recently received the 1989 Helen Hayes Award for Medical Research at a ceremony in New York City. The honor is given annually to a person who has made "significant contributions to the quality of life." Hayes, shown here with Fauci, presented him with the award for his basic research in demonstrating the immunopathogenic mechanisms of HIV infection and for developing strategies for the therapy and immune reconstitution of patients with AIDS.

Symposium on Gene Regulation and Cellular Signaling

The NIDDK is sponsoring a 2-day symposium on "Approaches to Gene Regulation and Cellular Signaling in the Kidney and Urothelium" to encourage the application of basic research approaches to kidney and urologic diseases.

The symposium is organized into four scientific sessions—Regulation of Gene Expression: An Overview, chaired by Dr. Alan Schechter, chief of NIDDK's Laboratory of Chemical Biology; Growth Factors, Receptors, and Signal Transduction, chaired by Dr. Thomas F. Deuel from Washington University School of Medicine; Epithelial Polarity and Function in Kidney Tubules, chaired by Dr. Dennis A.

Ausiello from Massachusetts General Hospital; and Toward Molecular and Cellular Solutions to Renal and Urologic Problems, chaired by Dr. Stephen T. Reeders from Yale University School of Medicine. A poster session will wrap up the first day of presentations.

The symposium, which will be held Mar. 5-6 at the Bethesda Marriott, is an NIDDK 40th anniversary event sponsored by the Division of Kidney, Urologic, and Hematologic Diseases. For additional information, contact Dr. Robert Broyles, 496-7574. Advance registration is required.